

In the Claims:

1. (Currently amended) An apparatus for managing storage access, comprising:

a disk system including multiple storage devices capable of being coupled to a host system via interface ports and a data communication channel;

a disk system manager[[,]] operative to ~~manage information storage to and retrieval from said disk system~~ control accessibility by the host system to the multiple storage devices based upon a time component and a service level agreement, the service level agreement specifying billing rates based upon time components, the disk system manager capable of being coupled to the host system via a control communication channel that is different from the data communication channel; and

a storage access service system operative to grant ~~authorization to~~ time-based host system access to said multiple storage devices and to compute invoice amounts ~~disk system~~ based upon [[a]] the time component and the service level agreement.

2. (Currently amended) The apparatus of claim 1, wherein said time component further comprises time zone information, ~~and wherein said storage access service system determines charges for user access service based upon said time and access time.~~

3. (Previously presented) The apparatus of claim 2, wherein said storage access service system determines charges for user access based upon a history of accesses.

4. (Previously presented) The apparatus of claim 3, wherein said storage access service system determines charges by comparing said history of accesses to a billing rate schedule and thereupon computing a cost of access by summing a cost for each access according to said billing rate schedule.

5. Canceled.

6. (Currently amended) The apparatus of claim 2, wherein users agree to access ~~said~~ at least one of said storage devices ~~unit~~ during a preset schedule, and wherein said storage access service system determines charges for user access service based upon said preset schedule.

7. (Previously presented) The apparatus of claim 6, wherein said storage access service system determines charges for user access by comparing said preset schedule to a billing rate schedule and thereupon computing a cost of said preset schedule.

8. Canceled.

9. (Previously presented) The apparatus of claim 6, wherein said storage access service system determines charges by comparing said preset schedule to a billing rate schedule to determine an applicable billing rate, and thereupon computing a cost of said preset schedule in a billing cycle.

10. Canceled.

11. (Currently amended) A method for managing access to storage resources in a system having a plurality of tables, comprising:

storing user information including an identity of a user, ~~user~~; an identity of a resource, a time zone, and at least one billing rate for accessing said resource in a first table of the plurality of tables, the at least one billing rate being dependent on a predetermined time component in accordance with a service level agreement;

receiving a computer-based request to access said resource from a user;

granting access to said resource based upon said identity of said user, said identity of said resource, the time of the request, and said time zone using the first table, said granting including enabling the user to access the resource via a data communication channel;

using a control communication channel to map the resource to the user;

storing access information including said identity of said user, said identity of said resource, and said time zone in a second table of said plurality of tables; and

determining charges for accessing said resource based upon said identity of said user, said identity of said resource, the time of the access, and said at least one billing rate using the first table and the second table.

12. (Previously presented) The method of claim 11, further comprising:

logging individual instances of access to said resource into a history of accesses in said second table.

13. (Previously presented) The method of claim 12, wherein determining charges for a user based upon individual instances of access by said user of said resource, said time zone, and said at least one billing rate comprises:

determining a usage time for each individual instance of access selected from said history of accesses;

determining a billing rate corresponding to said usage time from among said at least one billing rate; and

computing a cost by summing a cost for each individual instance of access selected from said history of accesses, said cost computed by multiplying said usage time by said billing rate corresponding to said usage time.

14. (Previously presented) The method of claim 13, wherein said at least one billing rate corresponds to at least one of a plurality of time periods for said time zone, and wherein determining a billing rate corresponding to said usage time from among said at least one billing rate comprises:

comparing said individual instances of accesses logged into said history of accesses to said plurality of time periods to select a billing rate corresponding to said usage time from among said at least one billing rate.

15. (Original) The method of claim 11, wherein said user agrees to access said resource at a time period in accordance with a preset schedule; and wherein said granting access to said resource based upon said identity of said user, said identity of said resource, and said time zone comprises:

granting said user access to said resource within said time period in accordance with said preset schedule.

16. (Previously presented) The method of claim 15, wherein said at least one billing rate for accessing said resource corresponds to at least one of a plurality of time periods for said time zone, and wherein determining charges for accessing said resource based upon said identity of said user, said identity of said resource, said at least one billing rate, and said time period comprises:

selecting from among a plurality of billing rates a billing rate corresponding to said time period in accordance with said preset schedule; and

computing a cost of access by summing a cost for each individual instance of said time period in accordance with said preset schedule multiplied by said billing rate corresponding to said time period in accordance with said preset schedule.

17. (Previously presented) The method of claim 15, wherein said at least one billing rate for accessing said resource corresponds to at least one of a plurality of time periods for said time zone, and wherein determining charges for accessing said resource based upon said identity of said user, said identity of said resource, said at least one billing rate, and said time period comprises:

selecting from among a plurality of billing rates a billing rate corresponding to said time period in accordance with said preset schedule; and

computing a cost of access by multiplying said billing rate corresponding to said time period by a number of instances of said time period occurring in a billing cycle in said preset schedule.

18. (Currently amended) A method for charging users for storage access in a disk subsystem having a plurality of tables, said method comprising:

determining based upon a time zone of a location of a user at least one of a plurality of permitted access times in accordance with a service level agreement, and at least one of a plurality of access rates, said access rates corresponding to said permitted access times;

storing said at least one of a plurality of permitted access times, and said at least one of a plurality of access rates, said access rates corresponding to said permitted access times in a first table of the plurality of tables;

receiving a computer-based request to access said resource from a user;

using a control communication channel to map said resource to the user;

using the first table to enable the user to access the disk subsystem via a data communication channel only during the at least one of a plurality of permitted access times;

automatically tracking time periods when said user accesses storage in said disk system and storing said accesses in a second table;

using said first table and said second table to determine for said time periods charges to said user for access, said charge based upon said time zone of a location of said user, said at least one of a plurality of permitted access times, said time periods when said user accesses storage in said disk system, and said at least one of a plurality of access rates; and

determining a total cost from said charges to said users for access.

19. (Currently amended) A method for charging users for storage access in a disk subsystem having a plurality of tables, said method comprising:

determining based upon a time zone of a location of a user at least one of a plurality of permitted access times in accordance with a service level agreement, and at least one of a plurality of access rates, said access rates corresponding to said permitted access times;

storing said at least one of a plurality of permitted access times, and said at least one of a plurality of access rates, said access rates corresponding to said permitted access times in a first table;

receiving a computer-based request to access said resource from a user;

using a control communication channel to map said resource to the user;

using the first table to enable the user to access the disk subsystem via a data communication channel only during the at least one of a plurality of permitted access times;

using the first table and the second table to determine for said permitted access times, charges to said user for access, said charge based upon said time zone of a location of said user, said at least one of a plurality of permitted access times, time periods when said user accesses storage within said disk system, and said at least one of a plurality of access rates; and

determining a total cost from said charges to said users for access.